

PROPOSED ADDITION TO THE "OFFICIAL LIST OF SPECIFIC NAMES IN ZOOLOGY" OF THE SPECIFIC NAME "PINI" LINNAEUS, 1758, AS PUBLISHED IN THE BINOMINAL COMBINATION "APHIS PINI" AND AS INTERPRETED BY DE GEER (1773) (CLASS INSECTA, ORDER HEMIPTERA)

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I. Introductory

In the present application I examine the various discordant ways in which the nominal species *Aphis pini* Linnaeus, 1758, has been interpreted by subsequent authors and draw attention to the first occasion subsequent to Linnaeus (1758) on which a reviser definitely established the identity of the taxonomic species represented by the nominal species *Aphis pini* Linnaeus, 1758, and ask that the International Commission on Zoological Nomenclature should now place the specific name *pini* Linnaeus, 1758, as published in the binominal combination *Aphis pini*, as applied to the species referred to above, on the *Official List of Specific Names in Zoology*. That an authoritative decision should be given on the foregoing question is of importance not only for the purpose of stabilising the manner in which the nominal species *Aphis pini* Linnaeus should be interpreted, but also from the wider point of view of determining the identity of the species commonly regarded as the type species of the genus *Cinara* Curtis, 1835, a subject on which also I have submitted an application to the International Commission (Z.N.(S.)174).

2. Before approaching the main subject of the present application, it is necessary to dispose of a preliminary matter relating to the status of the name *Aphis pini* Linnaeus, 1758 (*Syst. Nat.* (ed. 10) 1: 453). Linnaeus there gave no verbal description of this species, beyond saying "*A. Pini sylvestris*" and adding "Habitat in Pino sylvestri." As will be seen a large part of the discussion which has since taken place regarding the identity of the Linnean species has turned on the impossibility of determining which of the several species which live on *Pinus sylvestris* Linnaeus had before him when he published the name *Aphis pini*. It must however be observed at this point that, if in fact Linnaeus had done nothing more than cite the host species of his *Aphis pini*, the name *Aphis pini* Linnaeus, 1758, would have to be regarded as a *nomen nudum*, for the International Congress of Zoology have ruled (and, indeed have decided to insert provisions in the *Règles* to make it clear) that "the citation of the name of a host species . . . unaccompanied by any other particulars does not constitute an 'indication' for the purposes of Article 25" (1950, *Bull. zool. Nomencl.* 4: 256). Fortunately, however, closer inspection of the entry in the *Systema Naturae* under the name *Aphis pini* shows that Linnaeus did give some additional particulars, for he there gave a bibliographical reference, as follows, to the first edition of his own

Fauna svecica; "Fn. svec. 718." Reference to the passage quoted shows that, after repeating that this species lives in "our Pinus 788," added the following words descriptive of the species itself: "Appendiculi brevissimi." The citation in 1758 of a reference to his earlier *Fauna svecica* incorporates into the 10th edition of the *Syst. Nat.* the brief description given in the *Fauna svecica* of the species named *Aphis pini* in 1758. Thus, contrary to what has commonly been stated, the name *Aphis pini* Linnaeus, 1758, is not a *nomen nudum*, but is an available name, having been published with a brief "indication."

3. It is necessary next to consider the status of a name (such as *Aphis pini* Linnaeus, 1758), which is an available name in the sense that it was published with an "indication" but which presents difficulties of interpretation, in view of the fact that the "indication" given is not sufficient, taken by itself, to make it possible to determine to which of several allied species the name should adhere. A means for determining a question of this kind has always existed in the form of Article 31 of the *Règles*, which applies to the subdivision of a composite nominal species the rules laid down in Article 30 for determining the type species of a genus, originally established without a designated or indicated type species. The interpretation of Article 31 has always been a matter of difficulty and it is fortunate, therefore, that this Article was re-written by the Thirteenth International Congress of Zoology at Paris in 1948 (1950, *Bull. zool. Nomencl.* 4: 73-76) and that the revision so adopted was completed by the Fourteenth International Congress of Zoology at Copenhagen in 1953 (1953, *Copenhagen Decisions zool. Nomencl.*: 72-78). It is in the light of these provisions that the position of the name *Aphis pini* Linnaeus is examined in the present application.

II. Historical account of the way in which the nominal species "Aphis pini" Linnaeus, 1758, has been interpreted

4. The first author to examine the complex of species centred around *Aphis pini* Linnaeus, 1758, was the non-binominal author De Geer (1773, *Mém. Hist. Ins.* 3 (2) (Des Pucerons): 27-39). De Geer recognised and clearly described two species, to which he gave respectively the non-binominal names *Aphis nudi pini* and *Aphis tomentosa pini*. He devoted considerable space to the description of these species and their life histories. In the case of the species which he called *Aphis nudi pini*, he described the male as being apterous. As has been pointed out to me (*in litt.*) by Dr. Ris Lambers, this is an extremely important observation, for it appears that there is only one European species of the genus *Cinara* Curtis which feeds on pine and in which the male is apterous. This is a character of critical importance, for it furnishes an indisputable criterion for identifying the species which De Geer called *Aphis nudi pini* and thus for disentangling the synonymy of this species in the later literature.

5. Goeze in 1778 (*Ent. Beytr. Linn.* **2** : 304–305) placed the name *Aphis nudi pini* De Geer, 1773, as a synonym of *Aphis pini* Linnaeus, 1758, and was thus the first author definitely to select one particular species from among those covered by the Linnean diagnosis to be the species to which the name *Aphis pini* Linnaeus should be applied.

6. Fabricius in 1781 (*Spec. Ins.* **2** : 389) adopted the same line as that of Goeze and in addition gave the binominal name *Aphis pineti* to the species which De Geer had called *Aphis tomentosa pini* in 1773. Fabricius adopted the same treatment for these species in 1794 (*Ent. syst.* **4** : 219) and in 1803 (*Syst. Rhynq.* : 300).

7. Villiers (1789, *Linn. Ent.* **1** : 549), like Fabricius in 1781, realised that a binominal name was needed for the species which De Geer (1773) had called *Aphis tomentosa pini*, and, being presumably unaware of the fact that Fabricius had already given it the name *Aphis pineti*, himself gave it the new name *Aphis tomentosa*.

8. Kaltenbach in 1843 (*Mon. Fam. Pflanzentläuse (Phytophythires)* : 155–160) described a species of *Lachnus* Burmeister which he identified with *Aphis pini* Linnaeus. He also quoted at some length some of the observations made by De Geer in regard to his *Aphis nudi pini*. Kaltenbach incorrectly identified De Geer's species with that which he himself was considering and attributed it to Linnaeus.

9. Walker in 1848 (*Ann. Mag. nat. Hist.* (2) **2** : 102) also described a species to which he applied the name *Aphis pini* Linnaeus. The identity of the species so described by Walker was later examined by Swain (1921). See paragraph 18 below.

10. In 1855 (*Die Pflanzentläuse Aphiden* : 234–236) Koch described a species under the name *Lachnus pini*, which he attributed to Linnaeus and thus considered to be the same species as *Aphis pini* Linnaeus. The species so identified by Koch was later discussed both by Cholodkovsky (1898) and by del Guercio (1909). See paragraphs 14 and 15 below. In addition, Koch described a second species under the name *Lachnus pineti* Fabricius. Koch, however, misidentified the Fabrician species. The species which he so identified with the *pineti* of Fabricius has for the most part been incorrectly treated as having been so named by Koch. It is the species which Mordvilko, 1895 (*Zool. Anz.* **18** : 100) named *Lachnus pineus*.

11. Buckton in 1881 (*Mon. brit. Aphid.* **3** : 50) was the next author to describe a species under the specific name *pini* Linnaeus. The species so identified by Buckton was later discussed by Swain (1921). See paragraph 18 below.

12. Weed in 1890 (*Agric. Sci.* **4** (No. 6) : 157, pl. 2) described the Scotch Pine Plant-Louse under the name *Lachnus pini* (Linnaeus). His action in this matter was later commented upon by Patch (1912). See paragraph 16 below.

13. In 1895 (*Zool. Anz.* **18** : 73–85, 93–104) Mordvilko rejected the name *Aphis pini* Linnaeus and gave a new name, *Lachnus nudus* (: 99) (which however he attributed to De Geer) to the species which De Geer (1773) had called *Aphis nudi pini*. Although De Geer was not a binominal author and had never used the term *nudus* as a specific name, Mordvilko attributed that name to De Geer ; Mordvilko himself must however be regarded as the author of this name, which

accordingly takes priority only from 1895. The following are the reasons given by Mordvilko for his rejection of the name *Aphis pini* Linnaeus: "Einige früher beschriebene *Lachnus* Arten konnten in der Tabelle nicht aufgenommen werden. Hauptsächlich weil ihre Beschreibungen nicht ausführlich sind. Diese sind folgende: *L. hyalinus* Koch, *confinis* Koch, *laricis* Koch 26, *cupressi* Buckt., *macrocephalus* Buckt. (ist höchst wahrscheinlich *L. hyalinus* Koch), *pinicola* Buckton 27, *piniphila* Ratz., 28, und *L. pini* nach Linné 29 und Fabricius 30." As the nominal species *Lachnus nudus* Mordvilko was expressly based upon the *Aphis nudi pini* of De Geer, Mordvilko was the first modern author to recognise the species *Aphis pini* Linnaeus, as defined by Goeze and Fabricius. Mordvilko, it may be noted, was aware that the males of his *Lachnus nudus* were apterous. In the same paper Mordvilko treated, as *Lachnus pini* Kaltenbach, the species which in 1843 Kaltenbach had described under that name but which that author had identified with *Aphis pini* Linnaeus (paragraph 8 above).

14. Cholodkovsky in 1898 (*Hor. Soc. ent. ross.* **31**: 7, 32, 40–41) also considered the question of the species identified by Kaltenbach (paragraph 8 above) as *Aphis pini* Linnaeus. The conclusion that he reached was that it was a species very near to *Lachnus taeniatatus* Koch, 1857. Cholodkovsky added that the observations by De Geer which Kaltenbach had cited as relating to the species which he was then describing did not in fact relate to that species, but to *Lachnus nudus* De Geer [sic] [recte *Lachnus nudus* Mordvilko]. Commenting on the species which Koch (paragraph 10 above) had called *Lachnus pini* (and which he had identified with *Aphis pini* Linnaeus), Cholodkovsky expressed the opinion that the species in question was the same as that which De Geer had called *Aphis nudi pini*. Cholodkovsky did not make use of the name *Aphis pini* Linnaeus, holding, in regard to it, much the same view as that expressed by Mordvilko (1895) (see paragraph 13 above).

15. The identity of the species which Koch had described under the name *Lachnus pini* (Linnaeus) (i.e. as *Aphis pini* Linnaeus) was further discussed in 1909 (*Redia* **5** (2) 294–296) by del Guercio, who reached the same conclusion as that expressed by Cholodkovsky in 1898 (paragraph 14 above), namely that Koch's species was the *Aphis nudi pini* of De Geer.

16. In 1912 (*Maine agric. exper. Stat. Bull.* **202**: 168–169) Patch described a species, to which she applied the name *Lachnus pini*. She attributed this name to Weed, who (as we have seen in paragraph 12 above) had described the Scotch Pine Plant-Louse under this name, which however he had attributed to Linnaeus. Patch said:—"This species seems to agree with *Lachnus pineti* Koch as discussed and figured by Cholodkovsky (1898) and may prove to be that species."

17. Van den Goot in 1915 (*Beitr. Kenntn. holländisch. Blattläuse*: 405–408) did not mention *Aphis pini* Linnaeus at all. From his remarks on *Lachnus pineti* Koch, it seems likely that he included under that name the species which later Theobald identified as *pini* Linnaeus, except that he described the alate viviparous female as having only one sensorium on the third antennal segment, instead of from seven to nine.

18. Swain in 1921 (*Ent. News.* **32**: 228–229) reviewed both the *Aphis pini* Linnaeus of Walker (1848) (see paragraph 9 above) and the species, also identified with *Aphis pini* Linnaeus, described by Buckton in 1881 (see paragraph 11

above). His conclusion was that both the specimens described by Walker and those described by Buckton were referable to *Lachnus taeneatus* Koch, a species which he regarded as close to *Lachnus nudus* Mordvilko, 1895 (paragraph 13 above).

19. In 1923 (*Guide Ins. Connecticut* 4 (Hemipt. Fam. Aphididae) : 261-262) Wilson described the apterous and alate viviparous females of *Lachnus pineus* Mordvilko, 1895, under the name *Dilachnus pini* (Linnaeus). In this he was widely followed by later workers.

20. Davidson in 1925 (*List brit. Aphides* : 63), when discussing what he called *Lachniella pini* (L.), added the following note: "*Aphis pini* (L.) of Walker and *L. pini* of Buckton do not appear to be the same species." Swain (1921), it will be recalled (paragraph 18 above), had already expressed the view that Walker and Buckton had misidentified another species (Swain suggested *Lachnus taeniatus* Koch) with *Aphis pini* Linnaeus. From Davidson's remarks it may be concluded that the species with which he was dealing was the same as that which later Theobald (1929) was to identify with *Aphis pini* Linnaeus (paragraph 21 below), although it must be admitted that the fact that Davidson placed this species in the genus *Lachniella* (in which the media of the forewing is only once-branched) suggests otherwise.

21. In 1929 (*Plant Lice Gl. Brit.* 3 : 145-147) Theobald treated *Aphis pini* Linnaeus as a member of the genus *Panimerus* Laing, 1926 (*Entomologist* 59 : 322), a name which in a footnote Laing changed to *Neochmosis* (1929, *ibid.* 3 : 129). Of the species with which we are here concerned Theobald listed the following as synonyms: *Aphis nudi pini* De Geer, *Aphis pini* Linnaeus, *Lachnus pini* Kaltenbach, *Lachnus nudus* Mordvilko, together with others. Theobald described his species as having alate males, thus showing conclusively that the species before him was not the *Aphis nudi pini* of De Geer, the males of which are apterous (see paragraph 4 above) and consequently was not *Aphis pini* Linnaeus, as interpreted by Goeze. His description indicates that the species which he had before him was *pineus* Mordvilko. Thus, Theobald was in error not only when he cited *Aphis nudi pini* De Geer and *Lachnus nudus* Mordvilko in the synonymy of his species, but also when he so cited the *Lachnus pini* Linnaeus of Kaltenbach, 1843 (see paragraph 8 above).* The conclusion reached by Wilson (1923) (paragraph 19 above) and by Theobald (1929) exercised a considerable influence and was followed by a number of subsequent Aphid workers.

22. In a paper published in 1930 (*Proc. biol. Soc. Wash.* 43 : 185-188) I expressed the view that *Cinara nudus* (Mordvilko, 1895) was not a synonym of *Aphis pini* Linnaeus, 1758, and that the latter species was the species to which Koch (in 1855) had given the name *Lachnus pineti*.

* The species which Kaltenbach (1843) erroneously identified with *Aphis pini* Linnaeus (see paragraph 8 of the present paper) cannot bear the name *pini* Kaltenbach, for the *Règles* expressly provide (Article 31) that a specific name based upon a misidentification cannot be accepted as an available name. Even if this were otherwise, the species of Kaltenbach could not bear the name *pini* in the genus *Cinara* Curtis, for in that combination the name would be a junior secondary homonym of *Cinara pini* (Linnaeus). I accordingly hereby give the name *Cinara kaltenbachi* nom. nov. to the species which Kaltenbach misidentified with *Aphis pini* Linnaeus, 1758.

23. In 1930 I received two interesting letters from Mordvilko bearing on the present problem. In the first of these letters (which was dated 3rd June 1930), Mordvilko wrote: "At present it is not possible to establish what Linné meant by his *Aphis pini*. There are four to six species of *Lachnus* at least that live on the branches and shoots of *Pinus* in Europe. Under the name of *L. pini*, J. Kaltenbach, 1841-1843, described already a certain *Lachnus* species of the group *pini* (L.) Kalt., to which the following species belonged: *L. pini* K., *L. pineus* Mordv. (= *pineti* Koch nec Fab.), *L. hyperophilus* Koch, etc. *Lachnus nudus* Deg. is certainly quite a peculiar *Lachnus*, to which group *L. nudus* Deg., *L. taeniatus* Koch, *L. pinihabitans* Mordvilko also belong. (See Mordvilko, 1894-1895; Zool. Anz., 1895; N. Cholodkovsky, Hor. Soc. Ent. Ross. **31**, 1898.)" In the second of the two letters (letter dated 18th July 1930) Mordvilko wrote: "Today I am sending you two glass tubes with plant lice, *Lachnus nudus* Deg. and *L. pineus* Mordv. (= *pineti* Koch) (? = *L. pini* L.). In my opinion, under the name of *A. pini*, Linné meant one of the species of the group Mordv. *pineus*, *curtiplosus*, *hyperophilus* Koch, *pini* Kalt., because *L. pineus* f.e. is the most common species. If they proved to be one and the same species, this would be called *L. pini* L." From these quotations, we see that, while Mordvilko was still inclined to question whether the *Aphis pini* of Linnaeus could be recognised, he was willing to hazard a guess that this was possible. (I may mention here that in a letter dated 4th August 1948, Dr. Ris Lambers questioned whether Mordvilko was right in thinking that *L. pineus* is the commonest species of the group. Perhaps Mordvilko thought of *L. pineus* as being the most widely spread geographically of the species concerned, as Cholodkovsky (1898) had suggested was the case.) Looking at Mordvilko's conclusion generally, we have to note that, in order to identify *Aphis pini* Linnaeus in the way that he did, he had to put out of his mind the fact that the *Aphis nudi pini* of De Geer has apterous males, while in his *pini*, which is the *pini* of Wilson and Theobald, the males are alate.

24. In 1932 (in Sorauer, *Handb. Pflanzen. Krankh.* (ed. 4) **5**: 568) Börner and Schilder placed the *Aphis nudi pini* of De Geer as a synonym of *Cinara pini* (Linnaeus), thus accepting Goeze's interpretation of that species.

25. In 1939 (*Arbeit. physiol. angewandt. Ent.* **6** (1): 76), however, Börner erected a new genus to which he gave the name *Cinaria*, designating, as its type species, *Cinaria kochiana* nom. nov. for *Aphis laricis* Walker, 1848 (*Ann. Mag. nat. Hist.* (2) **2**: 102). It appears that the chief characteristic of this genus is the presence of a well developed mesosternal tubercle. Lambers (1948: 275), however, has since stated that such a tubercle is present in *Cinara nudus* (Mordvilko), that is, in the true *Aphis pini* of Linnaeus. Lambers has stated also in the same place that in 1939 Börner accepted the opinion of Theobald and others who described the aphid known as *Lachnus pineus* Mordvilko under the specific name *pini* Linnaeus.

26. Oestlund in 1942 (*Syst. Aphid.*: 24) accepted the species *Lachnus pineti* Koch, as interpreted by Van den Goot (1915) (see paragraph 17 above) as being the same species as *Aphis pini* Linnaeus, 1758. However, he described the male of this species as being alate, and it is evident, therefore, that he did not have before him the true *Aphis pini* of Linnaeus, as interpreted by Goeze (see paragraph 5 above).

27. The problem with which we are concerned was posed as follows very

clearly by Lambers in 1948 (*Trans. R. ent. Soc. Lond.* **99**: 274-275): "The description of *pini* by Linné is such that it may apply to at least five species living on *Pinus silvestris*. Therefore, the name is available for any of these species. It has alternately been used for two species, one also known as *pineti* Koch or *pinæa* Mordvilko, the other as *nuda* De Geer or *nuda* Mordvilko. It is clear that De Geer believed that his *Aphis nudi pini* was *pini* L. Therefore Goeze and Gmelin were in all respects correct in placing *Aphis nudi pini*, an invalid name, as a synonym of *pini* L. As De Geer describes his species so clearly that a misunderstanding has never occurred as to what he meant, we have one very clear and distinct conception of *Aphis pini* L., which has the advantage of being the oldest interpretation."

III. Conclusions and Recommendations

28. Having now examined the principal occasions on which the specific name *pini* Linnaeus, 1758, as published in the combination *Aphis pini*, has been used, we may summarise our principal conclusions as follows: (1) The nominal species *Aphis pini* Linnaeus, 1758, may or may not have been a composite species but in any case its description is so scanty that it cannot be interpreted with certainty until some later author, acting under Article 31 of the *Règles*, definitely links the specific name *pini* Linnaeus to a clearly recognisable species which conforms with the description given by Linnaeus. De Geer (1773) clearly distinguished two species belonging to the *pini*-complex and it might easily be claimed that of these he definitely identified with *Aphis pini* Linnaeus the one to which he applied the non-binominal name *Aphis nudi pini*. Even if the view is taken that De Geer's action was not sufficiently precise to bring it within the scope of Article 31, there can be no question but that five years later Goeze (1778) definitely identified *Aphis nudi pini* De Geer as the species described by Linnaeus as *Aphis pini*. It can certainly be concluded therefore that, under Article 31, the above is the manner in which the nominal species *Aphis pini* Linnaeus is to be interpreted. (2) It cannot be said that over the period as a whole there has been any consistently general use of the specific name *pini* Linnaeus. In the XVIIIth Century, it may be said that *Aphis pini* Linnaeus was consistently interpreted in the correct manner; in the XIXth Century the name *pini* Linnaeus was interpreted in a variety of inconsistent, and, in almost every case, incorrect ways, and in the last decade of the century a fresh impetus was given to the tendency to use this name in an incorrect manner through the influence exerted by Mordvilko (1895), the first modern author to recognise the species described by De Geer as *Aphis nudi pini* (= *Aphis pini* Linnaeus, 1758), who unfortunately abandoned the use of the specific name *pini* Linnaeus, giving to that species the specific name *nudus*: the XXth Century also has witnessed considerable divergence of practice; Mordvilko's influence persisted for a considerable time until it was replaced by that of Wilson (1923) and Theobald (1929), who restored the specific name *pini* Linnaeus but unfortunately associated that name not with *Aphis nudi pini* but with the species to which Mordvilko had given the name *pinæus*. In the most recent period, however, there has been a move to restore the specific name *pini* Linnaeus to its correct usage. This course was followed by Börner and Schilder (1932), by Oestlund (1942) (so

far as the bibliographical references, but not the description, are concerned) and by Lambers in 1948.

29. If it had been found that there had been a preponderating use of the specific name *pini* Linnaeus for some species, other than that to which, in consequence of the action of Goeze (1778) it applies under the *Règles*, there might well have been a case for asking the International Commission on Zoological Nomenclature to use its Plenary Powers to set aside the selection made, under Article 31, by Goeze in 1778, and to select in its place whatever other species had commonly been accepted as being the species represented by the nominal species *Aphis pini* Linnaeus. I have carefully considered whether such a course is called for in the present case, but, in view of the history of this name, as summarised in the preceding paragraph, and having regard also to the fact that the most recent authors who have treated of these species have applied the name *pini* Linnaeus in the manner required by the selection made by Goeze in 1778, I have reached the conclusion that the use of the Plenary Powers for the purpose of setting Goeze's (1778) selection on one side would not be justified and that the course which would lead to the least confusion and inconvenience—for some is probably unavoidable—would be for the International Commission to register a definitive acceptance of Goeze's interpretation of the nominal species *Aphis pini* Linnaeus.

30. I accordingly now ask the International Commission on Zoological Nomenclature :—

- (1) to place on the *Official List of Specific Names in Zoology* the specific name *pini* Linnaeus, 1758, as published in the binominal combination *Aphis pini*, the species so named to be interpreted by reference to the description given by De Geer (1773) for *Aphis nudi pini*, as so selected by Goeze (1778) ;
- (2) to place on the *Official Index of Rejected and Invalid Specific Names in Zoology* the specific name *nudus* Mordvilko, 1895, as published in the binominal combination *Lachnus nudus* (the specific name of a nominal species which, being based on *Aphis nudi pini* De Geer, 1773, is objectively identical with *Aphis pini* Linnaeus, 1758, under the selection made by Goeze (1778) under Article 31).